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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,313	04/13/2005	Takeshi Yuuki	270312US0PCT	9109

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EXAMINER	
GARDNER, SHANNON M	

ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
08/21/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/531,313	YUUKI ET AL.	
	Examiner	Art Unit	
	Shannon Gardner	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 June 2009 (RCE)*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-26 and 28-42* is/are pending in the application.

4a) Of the above claim(s) *31-42* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-26 and 28-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/23/2009 has been entered.

Response to Amendment

Applicant's amendment of 6/23/2009 does not render the application allowable.

Remarks

Applicant has amended claim 21. Claims 1-20 and 27 remain cancelled. Claims 31-42 remain withdrawn as per a previous restriction requirement. Currently, claims 21-26 and 28-30 are pending in the application and are considered on their merits below.

Status of Objections and Rejections

All rejections from the previous office action are withdrawn in view of Applicant's amendment. New grounds of rejection necessitated by the amendments are set forth below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 21-26 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kataoka (JP 09-036405, cited in IDS, machine translation provided) in view of Fujisaki (JP 61-166182, cited in IDS) and Morikawa et al. (US 2003/0152692).

As to claim 1, Kataoka is directed to a process of producing a solar battery module (400) comprising (see Drawing 4 and paragraphs [0011]-[0014]):

- Plural solar battery cells (401), said process comprising:
  - Arranging plural solar battery cells at a prescribed interval and mutually connecting them to each other by a conductor (see interconnects between cells in Drawing 4)
  - Arranging a first sealing resin sheet (402 – top) substantially covering the entire surface of a transparent panel of a light reception surface side, between the transparent panel of the light reception surface side (403) and the solar battery cells (401);

- Arranging a second sealing resin sheet (402 – bottom) substantially covering the entire surface of a back face panel (406), between the back face panel and the solar battery cells (401)
- Discharging air between the transparent panel of the light reception side and the back face panel (paragraph [0014]);
- Heating the resin for melting and then cooling it down for sealing (paragraph [0014]).

Kataoka is silent as to arranging sealing resin sheet pieces having a thickness thicker than that of the solar battery cells at a space between the solar cells so as to be sandwiched by the first sealing resin sheet and the second sealing resin sheet.

However, it is known in the photovoltaic art to utilize spacers (4) in the intervals between solar cells in a resin-laminated (2) photovoltaic module (Figure) at a space between the solar cells so as to be sandwiched by the first and second resin sheets (2) in order to prevent the superposition of adjacent elements during sealing of the resin, as taught by Fujisaki (see Figure and abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the spacers taught by Fujisaki in the device taught by Kataoka in order to prevent the superposition of adjacent elements during sealing.

Fujisaki is silent as to the spacers (4) being comprised of at least one resin selected from the group consisting of ethylene-vinyl acetate (EVA) copolymer,

polyvinyl butyral, and polyurethane. Fujisaki is also silent as to the sealing resin pieces being melted by heating.

However, Kataoka teaches surrounding the solar battery cells with sealing resin consisting of EVA or polyvinyl butyral for heated sealing (paragraphs [0013]-[0014] and [0028]) as such materials are well known in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to create the spacers (4) of modified Kataoka of the same material used for the top and bottom resin sealing sheets (i.e. EVA or polyvinyl butyral) as these materials are well known in the art to ensure proper sealing of solar battery cells (paragraphs [0013]-[0014] and [0029] of Kataoka). Thus during the heating step taught by Kataoka (paragraph [0014]), the modified spacers would be melted by heating and subsequently cooled in the cooling step taught by Kataoka (paragraph [0014]).

Modified Kataoka teaches the transparent panel of the light reception surface side being made of tempered glass (paragraph [0039]) but fails to teach the back face panel comprising a glass panel. Kataoka fails to teach the glass panel having a thickness of from 3 to 20 mm. The Examiner notes that Kataoka teaches the rear member being made of a material with sufficient electric insulation such as nylon and PET (polyethylene terephthalate) (see paragraph [0043]).

However, it is known in the art to utilize glass as a front and back plate of a device for low moisture permeability and high translucency as taught by Morikawa et al. (paragraphs [0117] and [0120]). Morikawa teaches that PET and glass are known equivalents (paragraphs [0117] and [0120]). Further, Morikawa teaches that it is

preferred to have a glass thickness of not less than 500 μm to 3 mm to obtain sufficient moisture resistance and shock-proofing (paragraph [0122]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a glass panel having a thickness of from 500 μm to 3 mm for the transparent panel of the light reception surface side and the back face panel of modified Kataoka to obtain sufficient moisture resistance and shock-proofing as taught by Morikawa. (The Examiner notes that it would have been obvious to one of ordinary skill in the art to utilize the same glass panel with the same thickness for both the transparent panel of the light reception surface side and the back face panel side to streamline the manufacturing process by utilizing equivalent front and back pieces).

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists (see MPEP § 2144.05 and *In re Wertheim)*.

Regarding claims 22-25, where the only difference between the prior art and the claims is a recitation of relative dimensions of the claimed device, the claimed device is not patentably distinct from the prior art device (*Gardner v. TEC Systems, Inc.* 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984), also see MPEP § 2144.01 section II). Therefore, having the thickness of the sealing resin sheet pieces being thicker than the sum total value of the thickness of the solar battery cells and the thickness of the conductor as well as having the width of the sealing resin sheet pieces being narrower than the width of the space between solar cells would have been within purview of one of ordinary skill in the art at the time of the

invention with only routine experimentation in order to accommodate solar cells of varying sizes.

Regarding claim 26, Kataoka teaches a space between the sealing resin sheet pieces, and the internal air being discharged therethrough (paragraphs [0011] and [0014]).

Regarding claim 28, Kataoka teaches the sealing resin sheeting being made of a crosslinkable thermoplastic resin (paragraph [0005]); and in sealing in a sealing treatment vessel (Drawing 7), the sealing operating including respective steps of a step of reducing the pressure in the sealing treatment vessel ("exhaust top and bottom room") at a temperature which the thermoplastic resin is not melted, a step of raising the temperature ("heat with a heater") to the vicinity of or higher than the melting point of the thermoplastic resin ("...sealing agent resin fuses", if the resin is able to fuse it must be melting) in the reduced-pressure state, a step of raising the pressure in the sealing treatment vessel ("return to atmospheric"), a step of raising the temperature to a temperature range where a crosslinking reaction proceeds ("EVA heats to the temperature which causes crosslinking"), thereby proceeding with the crosslinking reaction, and a step of performing cooling is carried out ("take out module *after cooling*").

Regarding claim 29, Kataoka teaches the transparent plane of the light reception surface side being made of tempered glass (paragraph [0039]).

Regarding claim 30, it is the Examiner's position that Kataoka's rear face member (505, aluminum coated TEDORA film) is semi-transparent (see paragraph

[0060]) and therefore the solar battery module produced will function as a daylighting type solar battery module.

Response to Arguments

5. Applicant's arguments with respect to claim 21 have been considered but are moot in view of the new ground(s) of rejection. Applicant is invited above for a full discussion of the references as applied to newly amended claim 21.

Contact/Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shannon Gardner whose telephone number is (571)270-5270. The examiner can normally be reached on Monday to Thursday, 8am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571.272.1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. G./
Examiner, Art Unit 1795

/Jennifer K. Michener/
Supervisory Patent Examiner, Art Unit 1795